

**REMARKS**

Claims 1-46 are pending. Claims 24-46 are withdrawn. Claims 1 and 11 have been amended. No new matter has been added.

Claims 1 and 11 stands rejected under 35 USC 102(b) as being anticipated by Gallagher, U.S. Patent No. 5,640,343. Claims 2-10 and 12-23 stand rejected under 35 USC 103(a) as being unpatentable over Gallagher in view of Yagishita, U.S. Patent Publication No. 2002/0179980. These rejections are respectfully traversed.

Amended claim 1 recites “said current control element controls a current flowing in said variable resistive element when applying a voltage to both ends of said variable resistive element.” This amendment has been made to clarify the claimed invention. According to the invention of claim 1, an electric resistance of a variable resistance element is varied when a voltage is applied to the both ends of the variable resistance element. The variation of the electric resistance (resistance value) is used for storing information. However, Gallagher teaches a writing operation that differs from the claimed invention.

The writing operation of Gallagher is described in “WRITE OPERATION” at col. 7, line 55 to col. 8, line 22 of Gallagher. According to Gallagher, an MJT element used in a MRAM is configured to sandwich by ferromagnetic layers an extremely thin insulating layer, being as thin as some atoms, where an electrical resistance is varied in accordance with the magnetization direction of the ferromagnetic layers. When a current is applied to a line (bit line, word line) in one direction, the ferromagnetic layers are magnetized in one direction in accordance with the direction of current, and thus the flow of the current becomes smoother by the tunnel effect of the thin insulating layer which leads to a decrease in the resistance value. On the other hand, when a current is applied to the line in the reverse direction, the ferromagnetic layers are magnetized in the reverse direction in accordance with the current, which disturbs smooth flow of the current, thus resulting in an increase of the resistance value.

Gallagher teaches at col. 6, lines 22-24, that a magnetic field is generated when a current is passed through the bit and word lines, thus a magnetic field needed for writing is generated *only* in a selected cell. Moreover, Gallagher discloses at col. 6, lines 48 to 53 that when current is passed through a write line and a bit line, a combined-magnetic field generated by the currents at the intersection of the write and bit lines will rotate the magnetization direction of the MTJ element. Further, Gallagher teaches that a cell array is designed such that write currents do not pass through the MTJ element itself (in col. 6, lines 60 and 61), and when reading out, a sense current much smaller than the write currents is passed through the MTJ element (col. 7, lines 8-10).

As described above, Gallagher uses the MJT element to vary a resistance by a magnetic field generated by current pathways (lines) adjacent to each other. This is contrary to the claimed invention. Thus, Gallagher fails to teach or suggest the features of claim 1.

Claim 11 recites substantially the same feature discussed above in connection with claim 1, and thus this claim is allowable for the same reasons. The dependent claims are allowable in light of the foregoing and further in view of Yagishita's failure to overcome the deficiencies of Gallagher. Applicant respectfully requests that this rejection be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and

authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 544782000300.

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Respectfully submitted,

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